

Message Text

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TO AMEMBASSY BONN PRIORITY

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E.O. 11652: NA

TAGS: TECH, IEA, OECD

SUBJECT: WORDING OF ANNEX TO IEA/GB (75)82 (PREPARATION FOR
THE NOVEMBER 1975 GOVERNING BOARD MEETING ON ENERGY

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RESEARCH AND DEVELOPMENT)

1. THE FOLLOWING IS PROPOSAL FOR COOPERATION IN GEOTHERMAL ENERGY R&D TO BE INSERTED AS ANNEX 3.3 OF SUBJECT DOCUMENT. PLEASE INFORM APPROPRIATE IEA OFFICIAL ACCORDINGLY.

2. BEGIN TITLE. INTERNATIONAL COOPERATION IN GEOTHERMAL R&D. END TITLE. BEGIN TEXT. " GEOTHERMAL ENERGY DEVELOPMENT HAS HAD A LONG HISTORY BUT THE ACTIVITIES HAVE BEEN OF LIMITED SCOPE, FOCUSING ON THE MOST NATURALLY EVIDENT AND READILY AVAILABLE RESOURCE -- HYDROTHERMAL CONVECTIVE AND IN PARTICULAR DRY STEAM. GEOTHERMAL ENERGY IS BEING USED FOR BOTH ELECTRIC POWER PRODUCTION AND SPACE HEATING IN SEVERAL IEA MEMBER COUNTRIES, INCLUDING THE U.S., NEW ZEALAND, ITALY AND TURKEY. TOTAL ENERGY PRODUCTION IN EACH CASE IS, HOWEVER, ONLY A SMALL FRACTION OF NATIONAL REQUIREMENTS. IN THE PAST FEW YEARS, HOWEVER, GEOTHERMAL RESEARCH DEVELOPMENT AND EXPLORATION ACTIVITIES HAVE INCREASED IN

SCOPE AND LEVEL OF ACTIVITY. ATTENTION IS NOW BEING FOCUSED ON DEVELOPING ENERGY PRODUCTION FROM A VARIETY OF GEOTHERMAL RESOURCE TYPES, INCLUDING HYDROTHERMAL CONVECTIVE, HOT DRY ROCK, GEOPRESSURED, AND MAGMA. THESE RESOURCES SIGNIFICANTLY EXCEED THE PRESENTLY EXPLOITED RESOURCES.

3. WHILE THERE ARE SOME EXISTING BILATERAL AND MULTILATERAL ACTIVITIES UNDERWAY (AS SUMMARIZED IN THE FEBRUARY 20, 1975, NOTE FROM THE U.S. DELEGATION TO THE IEA R&D GROUP) A VARIETY OF OPPORTUNITIES EXIST FOR BROADENED INTERNATIONAL COOPERATION WITHIN THE FRAMEWORK OF THE IEA.

4. INTERNATIONAL COLLABORATION COULD BE OF VALUE IN:

A. GEOTHERMAL RESOURCE ASSESSMENT AND RESERVOIR DEFINITION.

B. EVALUATION OF ENVIRONMENTAL ASPECTS AND CONSEQUENCES OF GEOTHERMAL ENERGY PRODUCTION ACTIVITIES.

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C. TECHNOLOGY DEVELOPMENT FOR NONELECTRIC USES. SITES IN SEVERAL COUNTRIES (ITALY, TURKEY, U.S.) HAVE BEEN IDENTIFIED WHICH MAY BE SUITABLE FOR SPACE HEATING APPLICATIONS BUT NOT FOR ELECTRIC POWER PRODUCTION BECAUSE TEMPERATURES ARE TOO LOW OR THE HIGH SALT CONTENT OF THE BRINES CAUSE DIFFICULTIES WITH HEAT EXCHANGERS OR REINJECTION. JOINT DESIGN AND CONSTRUCTION OF A PILOT HEAT EXCHANGER AND REINJECTION FACILITY IS PROPOSED.

D. DRY HOT ROCK R&D.

AT PRESENT THE MOST IMPORTANT TECHNICAL PROGRAM IN THIS RESOURCE AREA IS LOS ALAMOS SCIENTIFIC LABORATORY FIELD WORK IN NEW MEXICO, U.S., WHERE TWO DEEP (GREATER THAN 3 KM) DRILL HOLES IN CRYSTALLINE ROCK ARE BEING USED TO ESTABLISH A CIRCULATION LOOP AT APPROXIMATELY 2000C. THE RESEARCH IS CHALLENGING AND EXPENSIVE, BUT MAY BE APPLICABLE TO A HUGE, WORLDWIDE ENERGY SOURCE. OPPORTUNITIES FOR PARTICIPATION IN THE LOS ALAMOS PROGRAM BY SCIENTIFIC PERSONNEL FROM ALL IEA COUNTRIES CAN BE OFFERED.

E. SMALL ELECTRIC POWER PLANTS.

SMALL GEOTHERMAL POWER PLANTS (1-5 MWE) ARE OF CONSIDERABLE POTENTIAL VALUE IN BOTH DEVELOPED AND DEVELOPING COUNTRIES. IN THE FORMER, THEY CAN BE USED AS "WELL-HEAT" PLANTS, TO BEGIN ELECTRICITY PRODUCTION IN A NEW FIELD AND TO PROVIDE A REALISTIC TEST OF RESERVOIR

CAPABILITY AND COMPONENT PERFORMANCE. IN THE LATTER, THEY CAN SERVE THE POWER NEEDS OF AN ENTIRE REGION BASED ON A DOMESTIC RESOURCE, WHERE GEOGRAPHY AND HIGH IMPORTED ENERGY COSTS HAVE HAMPERED ELECTRIFICATION.

ALTHOUGH SUCH SYSTEMS HAVE BEEN OCCASIONALLY EMPLOYED IN THE PAST, NOTABLY IN ITALY, THERE HAS NOT BEEN A GENERAL RECOGNITION OF THEIR VALUE UNTIL RECENTLY. AS A RESULT, A SET OF SPECIFICATIONS FOR A PROTOTYPE PLANT ARE PRESENTLY BEING DEVELOPED BY A COMMITTEE OF EXPERTS FROM FIVE COUNTRIES INCLUDING ITALY, JAPAN, NEW ZEALAND, TURKEY AND THE U.S. WHEN COMPLETED, THESE SPECIFICATIONS WILL BE AVAILABLE FOR NATIONAL OR INTERNATIONAL USE IN THE DESIGN AND CONSTRUCTION OF A PROTOTYPE PLANT.

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IT IS PROPOSED THAT FOR ONE OF ITS TASKS IN THE GEOTHERMAL AREA THE IEA ASSUME THE RESPONSIBILITY FOR FURTHERING THE CONCEPT OF SMALL GEOTHERMAL POWER PLANTS. DESIGN AND CONSTRUCTION OF A PROTOTYPE UNIT PLUS INITIAL OPERATIONS, ALL UNDER INTERNATIONAL AUSPICES, WOULD PROVIDE RAPID SHARING OF THE EXPERIENCE GAINED AND A GREAT STIMULATION FOR THE GROWTH OF A VIABLE COMMERCIAL MARKET CAPABLE OF PROVIDING LOW-COST UNITS FOR DEVELOPED AND DEVELOPING COUNTRIES.

4. ADDITIONAL COOPERATIVE PROGRAMS LEADING TO JOINT PROJECTS IN GEOTHERMAL RESOURCE ASSESSMENT, EVALUATION OF ENVIRONMENTAL ASPECTS, NON-ELECTRIC USERS AND DRY HOT ROCK SOURCES SHOULD BE DEVELOPED AS SOON AS POSSIBLE." END TEXT.

5. FOR US MISSION OECD PARIS:
NOTE CHANGES FROM PREVIOUS DRAFT CONTAINED IN
VANDERRYN/BOXER TELEX. PLEASE INFORM BOXER OF NEW
WORDING. KISSINGER

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